

GENELEC®

# CASE STUDY

**Multi-zone spatial  
audio elevates German  
Football Museum's  
sensory experience**

EUROPE'S IMMERSIVE  
ART AND FOOTBALL  
EXHIBITION COMES ALIVE  
WITH GENELEC SMART IP







## FROM CONCEPT TO KICKOFF: SMART IP DELIVERS PRECISION SOUND FOR A WORLD-CLASS MULTIMEDIA SHOWCASE





Photography by: Carsten Kobow

The ambitious “In Motion — Art & Football” exhibition at Dortmund’s [German Football Museum](#) celebrates The Beautiful Game through the medium of great art, featuring works from iconic 20th-century artists from around the world. Deploying high-powered projectors, LED displays and an advanced audio system with twenty-five [Genelec Smart IP](#) networked

loudspeakers, the exhibition provides a richly immersive visitor experience.

Twenty-three UHD [Epson](#) projectors animate dynamic surfaces of various shapes and inclines, complemented by film, photography and sound. Visitors move through three distinct zones, encountering features including a 22-metre “Painter’s Palette” floor projection and a 5.1 x 4.2-metre projected sketchbook.

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Specialist German integrators [SIGMA](#) System Audio-Visual were tasked with the complex AV design and installation.

“We’ve worked with the German Football Museum for over ten years,” explains Christian Backes, SIGMA’s head of AV-Integration. “We provided the original AV and media systems — much of which are still in place and performing superbly. A year ago, the museum decided to create a brand new immersive art experience to celebrate the Euro Championships. It’s a long-term exhibition, but importantly, it’s designed so that when they choose a new theme, only the content needs changing — the core technology remains. Doubtless, certain elements will be shifted around to accommodate the new content, but basically the infrastructure is in place.”

A multi-layered audio system was essential to support the large space and numerous

displays without interfering with projections or sightlines. Berlin-based [LEM Studios](#) and [PBX Studios](#) were responsible for the sound design and audio content production.

Markus ‘Hossi’ Hossack of LEM Studios served as lead sound designer, mixing audio in both the studio and onsite. Starting from a stereo soundtrack, Hossack worked to adapt it into a rich, immersive soundscape. “The idea was to get the whole place shaking,” he explains.

A powerful in-ceiling system provided full-range audio across the venue, but for immersive playback, the sound had to be more intimate. “For the immersive details the sound needed to get ‘up close and personal’ to the visitors,” says Hossack. To achieve this, 25 Genelec [4430](#) Smart IP loudspeakers were installed discreetly beneath the two large lateral projection walls, each of which measured 17.5m by 26.5m. The 4430s played individual





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audio elements, creating a spatialised mix where different speakers delivered different content depending on where visitors stood.

At one point in the show, classical waltz music filled the room via the ceiling system, while the Genelecs played isolated instrument parts. Subtle sound effects like footsteps, pencil sketches and raindrops were also localised to match visuals. “We wanted to create a ‘walkable cinema,’” says Hossack. “We wanted to contain the sound in different zones of audio, giving each visitor a unique listening experience.”

“In the studio we mixed in [Dolby Atmos](#) and were able to prepare everything in 7.1.4,” he continues. “However, in the venue this had to be scaled up to incorporate all 50 loudspeakers used for the exhibition. Managing all of the timing, routing and synchronisation was a real challenge, and we only had four days in the

venue to put everything together,” he admits. “It was tight!”

Genelec’s [Smart IP Manager](#) software proved invaluable. “Given the short time we had on site, it was essential to work quickly, and Smart IP Manager enabled me to handle any filtering I wanted to do, as well as adding latency to each loudspeaker without having to do it in the Nuendo audio workstation software — which would have affected the bus structure,” says Hossack. “We took the middle of the show as our zero and worked out from there to maintain the immersive effect, adjusting for latency as we went.”

The Smart IP system’s network connectivity was another crucial factor, with audio, power, and management all carried on a single CAT cable. Hossack and LEM Studios had previously worked on a Marvel exhibition using 70 Genelec Smart IP speakers. “We raised



the audio budget for that project significantly,” says Hossack. “It can be a big investment, but the scalability, sound quality and quick installation definitely make it worth the cost.” This experience helped LEM Studios win the German Football Museum project.

“We are delighted with the Genelec equipment in our own studio,” Hossack continues. “The audio information is so incredibly precise, and the translation from one space to another works perfectly. We have a Smart IP setup in the studio as well as the larger Genelec studio loudspeakers, and once onsite we didn’t have to retune anything — everything sounded exactly as it did in the studio, which made life so much easier for us.”

While time constraints meant that ultra-precise localisation wasn’t always achievable, Hossack believes the outcome was even more effective. “Visitors were free to explore the exhibition, so getting them in the exact sweet spot for a particular audio moment would have been impossible. With slightly less focused localisation, the listening experience became

more accessible while still achieving the immersive effect. I was very happy it turned out so well with just four days to set up.”

Christian Backes from SIGMA shares that enthusiasm. “It’s a huge pleasure for us to use our expertise and state-of-the-art media technology to help create an exhibition that connects people globally.”

Despite the tight timeline and technical complexity, Genelec’s Smart IP loudspeakers proved pivotal in shaping an immersive, memorable audio journey through art and football. With plans underway to tour the exhibition globally, the Smart IP system is seen as essential to making that possible. “The system can be installed or taken down as needed in a fraction of the time of traditional systems,” concludes Hossack. “It’s the most versatile loudspeaker I know on the market.”

Thanks to the clarity, scalability, and ease of deployment of Genelec’s Smart IP series, the story of “In Motion — Art & Football” is only just kicking off.



## THE KIT

German Football Museum:

- 25 x 4430A
- 1 x Smart IP Manager

LEM Studios:

- 13 x 4430A
- 3 x 8351B
- 2 x W371A
- 4 x 8350A
- 4 x 8340A
- 1 x 7370A
- 1 x GLM Calibration Kit